MARCH 27, 1922

AVIATION

VOL. XII. NO. 13

Member of the Audit Bureau of Circulations

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THE GARDNER, MOFFAT COMPANY, Inc., *Publishers*
HIGHLAND, N. Y.
225 FOURTH AVENUE, NEW YORK

Subscription price: Four dollars per year. Single copies fifteen cents. Canada, five dollars. Foreign, six dollars a year. *Copyright 1922, by the Gardner, Moffat Company, Inc.*

Issued every Monday. Forms close ten days previously. Entered as second-class matter Nov. 22, 1920, at the Post Office at Highland, N. Y., under act of March 3, 1879.

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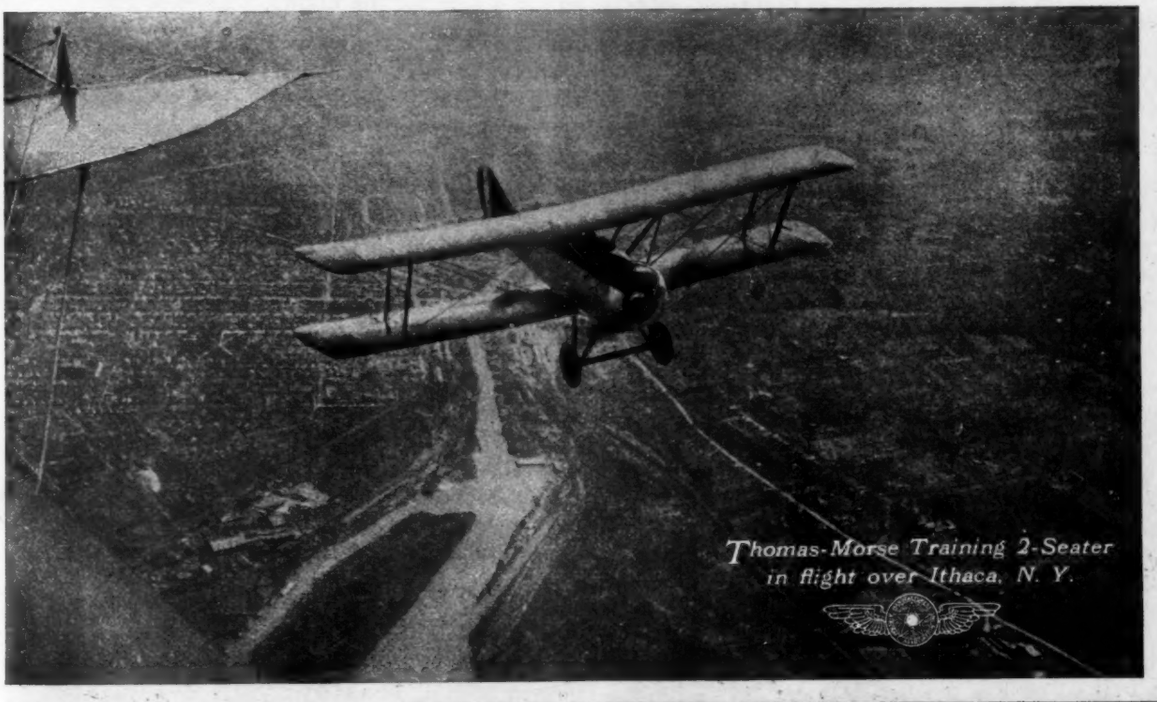

Thomas-Morse Training 2-Seater in flight over Ithaca, N. Y.

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AVIATION

LADISLAS D'ORCY, EDITOR
VIRGINIUS E. CLARK
EDWARD P. WARNER
RALPH H. UPSON, CONTRIBUTING EDITORS

Vol. XII MARCH 27, 1922 No. 13

Simplifying the Instrument Board

THE ordinary air speed indicator is accurate only at standard air density. When at high altitudes the venturi tube has quite different characteristics than when at ground level. To overcome this difficulty, many altimeters have a correction factor scale in addition to the altitude scale; also there has been at least one instrument produced which is intended for nothing else.

A French manufacturer has now produced an instrument that gives the true air speed at any altitude. This is done by having both an air speed indicator and an altimeter in the same case and using two needles. If as rugged as the usual forms of these instruments, this device should prove a hig asset.

This development marks another point in the recent trend of reduction in the number of separate instruments in the pilot's cockpit. The various "cloud-flying" combinations have already served to put two or three separate instruments behind one dial, or at least in one case. This line of progress will not only assist the pilot in navigating under difficult conditions but will greatly reduce the apparent complications of the airplane, and hence should be generally encouraged.

State vs. Federal Air Legislation

THE lack of federal air legislation and the ever expanding activities of civil aviation have brought about as a natural result an increasing number of State laws which provide for the regulation of civil flying. To date there are about a dozen States in the Union where the civil flier is, technically at any rate, subject to State legislation. While the enforcement of these laws varies a good deal from one State to another, the fact remains that a growing number of aerial laws is being written upon the statute books, and that these laws do not as a rule follow any common set of standards.

That such a situation is full of threatening possibilities is obvious. If different requirements are to govern in each State the practices of civil aviation, the legitimate growth of the latter cannot but be seriously impaired by the confusion attendant upon the enforcement of conflicting air laws.

The Wadsworth-Hicks bill, which provides for federal regulation of civil aviation in interstate commerce, will give its full benefit, if it is passed by Congress, only if the States will sincerely cooperate with its provisions. It may be regretted that this bill does not cover the control of air navigation more fully, but it appears that considerations of constitutionality have caused several of its original clauses to be deleted. As a result much of its effectiveness will depend upon the amount of cooperation the States will be willing to grant in this matter.

In this connection much interest attaches to the joint meeting of the sub-committees representing the American Bar Association and the Commissioners on Uniform State Laws which was recently held in Washington. While no definite action resulted from the meeting, the Wadsworth-Hicks bill was endorsed, and it was decided that no specific legislation be recommended to the States that would in any way conflict with the idea of absolutely uniform regulation of air navigation. In accordance with these views the tentative draft of a proposed uniform State air law which had been prepared by Dr. G. C. Bogert, Dean of the Cornell Law School, was examined. The discussion brought out the fact that sentiment was very strongly in favor of some such provision. The excellent suggestion was made among others that with Federal air regulation in force for interstate flying, States should require that pilots engaged in intrastate flying likewise secure a Federal license. Such a solution of the question of uniform air regulation seems to us by far the best, for it is simple and effective.

Aeronautical Nomenclature

IT is generally admitted by those who have given the subject more than a passing thought that the aeronautical nomenclature which the American and the British class publications employ is not without flaws. Its greatest merit is undoubtedly that it represents a concerted effort toward uniformity.

There are a few exceptions to the rule, such as the British use of *tail plane* for *horizontal stabilizer*—both of which are equally clumsy and circumlocutional—and the indifferent spelling of *airplane* and *aeroplane*. But on the whole the technical language used in aeronautical magazines, whether published in New York, London, or Sidney, hardly differs from one another.

Recently the Brtish Air Ministry announced that it will henceforth use the term *aeroplane* to denote a heavier-than-air craft with fixed wings, driven mechanically, and not as hitherto in the sense descriptive of a "land machine." Instead, *aeroplanes* will include "landplanes," seaplanes and amphibians, while seaplanes will include "float planes" and flying boats.

While we fully agree with the latter sub-division, which merely officially confirms common usage, since "boat seaplane" has always remained a dead letter, we feel much less sympathetic toward "landplane." It seems a questionable improvement to attempt to displace the generally used *airplane* by that clumsy word. The allegation that we need in English a generic term corresponding to the German *Flugzeug* and the Italian *velivolo,* is unconvincing to us, for we already have "flying machine"—a term which since the earliest days of aviation has been employed in this sense.

As the Nomenclature of Aeronautics of the National Advisory Committee for Aeronautics is now in process of correction and expansion, it will be interesting to see whether its coming edition will adopt the innovation of the British Air Ministry.

U. S. Naval Aviation Program, 1923

"A Fleet without Adequate Air Strength will be Little Better than None at All." -- Secretary of the Navy Denby

In his testimony before to the House Appropriation Committee on March 6, Secretary Denby made the following statement relative to the Naval Aviation Program:

"The increases in Naval Aviation strength asked for this years are all in the fleet air squadrons—the seagoing part of aviation; no increases of aircraft or personnel for shore stations are contemplated.

"The 1923 increases requested are a part of a gradual development program, which, if approved, will in five years bring our potential air strength up to the maximum permitted by the treaty. There are two sets of figures for each year in this program; one set for peace strength, the other for war strength; those for peace strength are of such percentages of those for war strength that they will permit full expansion, using reserve personnel and repeat production orders, in time to avoid delaying the fleet with aviation preparations. In preparing this program it has been taken for granted that the majority of the people in the country will desire us to make our limited fleet as effective as is possible under the terms of the treaty.

Increased Importance of Seaplane Tenders

"The provision in the treaty that prohibits us from strengthening shore fortifications on the western Pacific has, in conjunction with the limitation of aircraft carriers, given the seaplane tender a far more important place in Naval Aviation than it has had heretofore. We must now depend largely on seaplane squadrons based on tenders for scouting and for defense of advance bases.

"Two seaplane tenders are required for the 1923 program. We now have the Wright, which is also a lighter-than-air tender; also the Aroostook which should be returned to the mine laying duties she is designed for. The Langley, a makeshift carrier, can relieve the Aroostook as flagship of the Pacific Air Squadrons; the Wright, flagship of the Atlantic Air Squadrons, can continue as tender for a full torpedo-plane squadron and in addition handle her half squadron of kite balloons. In view of the new importance of the seaplane tender, we should develop standards in the equipment, operation and maintenance of this type ship without delay; we, therefore, request that another type B Shipping Board ship be transferred to the Navy and fitted out immediately for this duty. Our experience in seaplane operations has shown that the type B ships will make very satisfactory seaplane tenders; their conversion to this duty involves only the installation of a catapult for combat planes, an expansion of their living spaces, and the installation of gasoline tanks, lubricating oil tanks, and limited aviation work shop and store room facilities.

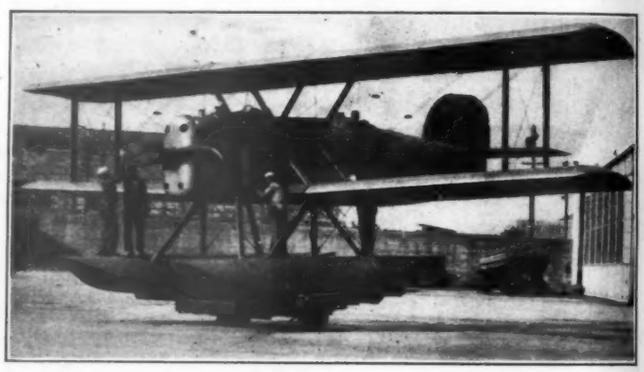
"Another reason for asking for an additional type B ship for a seaplane tender is our need for experience in the operation of a full seaplane squadron; the Wright, on account of the space required for her kite balloon material and personnel, cannot take care of both the full torpedo plane squadron she now has and a full squadron of eighteen seaplanes. At present the Wright is serving only one third of a squadron of F5L seaplanes and two NC's; this is not a sufficient number of seaplanes in one squadron for the proper study of air scouting tactics.

"The proposed standard aircraft equipment contemplated for a seaplane tender includes, besides one full seaplane squadron, a half squadron of combat planes. (It is for these that the catapult installation was listed in the items for conversion of a type B ship.)

Aircraft Depot Ships

"The present policy of equipping battleships and other suitable ships of the fleet with catapults and airplanes creates a new type of ship indispensable in fleet aviation. One of these new types, which we call aircraft depot ships in our development program, will be required in 1923. The purpose of this type of ship is to carry the maintenance and repair personnel and the replacement material and facilities for the airplanes carried on battleships and other ships of the fleet similarly equipped. A type B Shipping Board ship or any vessel of equal speed and displacement will be satisfactory for conversion to this purpose the alterations required are: quarters to accommodate, in addition to the ships company, 16 aviation officers and 265 men; shops and storage space for aviation equipment. It is requested that another type B Shipping Board ship be transferred to the Navy, or some other suitable vessel be equipped for this purpose in 1923.

"The need for carriers in our fleet is far greater than it was before the terms of the treaty were announced; our battleship force is cut far below the strength contemplated in the 1916 program, and we can complete no battle cruisers. Without the utilization of our full allowance of carrier tonnage, together with the equipment of all other suitable ships of the fleet with catapults and airplanes, it will be impossible for the Navy to undertake anything but a defensive, and consequently a losing, naval campaign. This statement is made with the natural assumption that the governments of our possible adversaries will not fail to keep their navies up to the full strength allowed them in the terms of the treaty, and that they will therefore utilize all of the carrier tonnage allotted to them. It should



(c) Underwood & Underwood

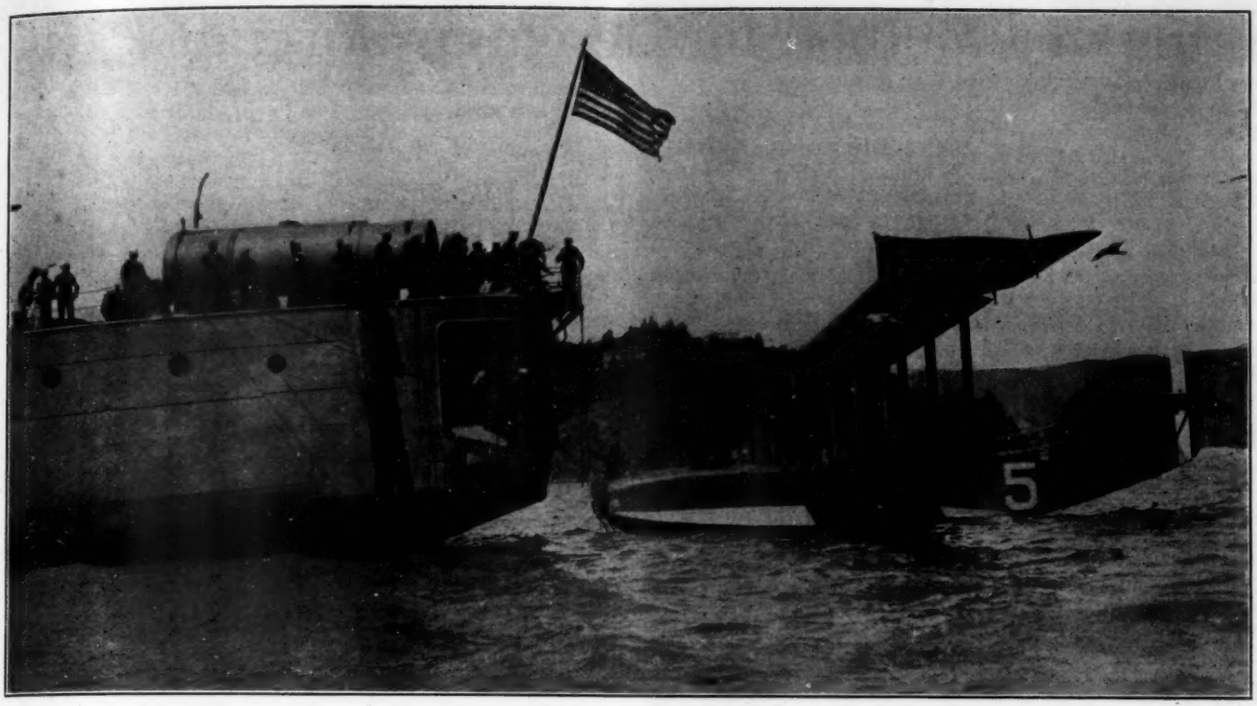
The Davis-Douglas single seater torpedo plane of which eighteen are under construction for Naval Aviation

be noted that Japan as well as Great Britain is already ahead of us in carrier strength in commission or under construction. While we sincerely hope that the carriers we build will never be used in actual warfare, we realize nevertheless that our only certain insurance against war is a Navy that can take the offensive; all students of naval history know that a navy capable of defensive fighting only is a certain loser; students of modern naval warfare know that a fleet without adequate air strength will be little better than none at all.

Our New Aircraft Carriers

"Under the terms of the treaty the United States is allotted a total of 135,000 tons in carrier displacement; and we are allowed to convert to carriers two of our partially completed battle cruisers that otherwise must be scrapped. We may thus acquire two 33,000 ton carriers of 34 knots speed; these will be the fastest ships afloat, as well as superior in aviation facilities to the best of any carriers now afloat or building. If the work of conversion of two battle cruisers is started immediately they can be made ready to join the fleet in the autumn of 1924. It is requested most urgently that this project be authorized without any unnecessary delay.

"If two 33,000 ton carriers are built the remainder of 135,000



An F5L naval flying boat takes contact with the U. S. aircraft tender Aroostook during the maneuvers of the Pacific Fleet Air Squadrons

tons allowance would permit us to build three 23,000 ton carriers. On this displacement we can build carriers for 29½ knots, a speed greater than the speed of any battle cruiser. Our five year plan of Naval Aviation development contemplates the construction of three 23,000 ton carriers in time to join the fleet on a schedule of one each year in the three years after delivery of the two 33,000 ton ships. Delivery of these ships at a faster rate would involve an expansion of our aviation personnel too rapid for us to undertake it without increasing the number of our shore stations for training pilots and mechanicians; these extra stations, after the expansion is completed, would be in excess of our normal requirements for training facilities. But, although we are suggesting this gradual expansion of Naval Aviation throughout a period of five years, we are nevertheless preparing plans that would enable us to meet—with prepared aviation material and personnel—the fastest building program on carriers that a national emergency may demand.

The Fleet Air Squadrons

"The Fleet Air Detachments, or, as they are now called, the Fleet Air Squadrons, comprise the mobile aviation strength of the Navy; there are now two of these organizations, one in the Atlantic, the other in the Pacific; each consists of the aircraft squadrons assigned to fleet duties, together with their attendant tenders; they now include only two seaplane tenders, —one the Wright, a combined lighter-than-air and seaplane tender, and the other the Aroostook which is much better suited to the mine laying duty for which she was designed. In the Atlantic Air Squadrons there are also two auxiliary tenders,—large seagoing tugs—and in the Pacific Air Squadrons there is one. The aircraft carriers when they are ready will be assigned to the Fleet Air Squadrons; in the meantime, the Langley, a very poor makeshift as carrier, will be commissioned in May next and after sometime on experimental work, it is expected that she will be assigned to the Pacific Air Squadrons.

"The duties of the air units assigned to the fleet are in general as follows:

(1) Air combat work in the protection of our ships from enemy bombing and torpedo planes; protection of our own air operations; aggressive combat work with the control of the air as an objective.

(2) Torpedo attack on enemy capital ships; carriers, light cruisers, and his train ships; bombing of above types of enemy ships and enemy naval bases. Mining and counter mining.

(3) Spotting gun fire of our ships.

(4) Scouting, reconnaissance and smoke screen laying.

"Without carriers in the Fleet Air Squadrons none of the above duties can be carried out continuously and effectively except at a short distance from shore bases. However, by the use of catapults and airplanes on battleships and on other suitable ships in the fleet, most of these operations can be started on a small scale; but they cannot be maintained, and they cannot be carried out on a large enough scale in overseas naval campaign without the assistance of the full allowance of carriers assigned us by the terms of the treaty. Without these carriers, therefore, to make our Fleet Air Squadrons effective, our Navy can never be anything but a second best Navy, which, as has been written into the Congressional Record, has about the same value as a second best poker hand."

American Airways, Inc.

American Airways Incorporated has been formed under the laws of New York with a capital of $50,000, having taken over the firm of American Airways. The officers of the new company are: Hugh D. McKay, formerly R.F.C., president; R. H. Blumenstock, formerly U.S.N.A.S., vice president and treasurer; Arthur Johns, secretary; Augustus Post, Secretary, Aero Club of America, Director; Robert A. Franks Jr., Director; Theodore L. Tibbs, R.F.C., ex-chief pilot and head instructor.

The purpose of the new company are to design, build and sell aircraft as well as to operate the school for the training of pilots and mechanics which the old firm established. The company is also authorized to operate airplanes and seaplanes for passenger carrying. The personnel of the school is: T. L. Tibbs, chief instructor; George Stelz, construction; Antony Bragoz, motors; John Sperry, Jr., design and motors; Henry Meyer, wingwork; John Brown, assistant on construction. Chas. N. Reinhardt, formerly of Aero Limited, will act as passenger agent at the Ritz-Carlton Hotel, and Scott Paton, ex-R.F.C., will have offices as agent at the Hotel Lorraine. Leslie Gillette, ex-R.F.C. is a member of the field staff

The seadrome of the American Airways at College Point, Long Island, has been designated and listed officially by both the Army and Navy Air Services.

Improved Method for Designing Aircraft Parts

A Practical Method for the Determination of the Elements of Irregular Structural Sections

By Roy G. Miller and F. E. Seiler, Jr.

Chief among the requirements of modern airplane design is the intelligent use of the best available materials. Each structural part must work to the greatest possible advantage and the factor of safety must be uniform for all parts of the structure. It is not to be inferred that more complicated fabrication is to be required in the shop; rather is it to indicate that greater care need be exercised in the original conception of the design and in the strength analysis. It is imperative that a refined analysis be made as inexpensive as possible by building up a system with rapid methods of calculation.

The Effect of Small Eccentricities

It is common practice among many engineers in calculating the stresses in a structure to dismiss as negligible the effect of small eccentricities. The error involved in this process of reasoning is of considerable magniutde in the case of short columns and lattices but becomes less important for long columns. An error of one hundred per cent may be introduced by neglecting the effect of eccentricity in a structural member. The importance of accurately determining the location of the neutral axis of each structural section is, therefore, apparent.

The accuracy of the method used for the calculation of the radius of gyration of a section is not of much importance in the case of a short column, but as the column length increases the importance of accuracy becomes more important. An error of 10 per cent in the determination of the radius of gyration may introduce an error of 20 per cent in the strength.

The irregular structural sections used in metal airplane construction present real difficulties when the neutral axes, radii

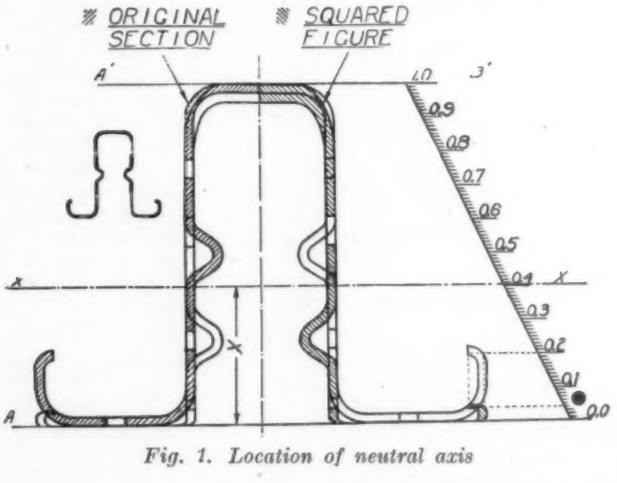


Fig. 1. Location of neutral axis

of gyration and moments of inertia are to be determined accurately but at not too great an expense of time. Handbook methods do not generally apply because of the extreme irregularity of the shapes and the fact that the axis in question may not be a principal axis. Analytical methods are too complicated to be of practical use. A graphic method which has come into quite general use obtains the location of the neutral axis by constructing a figure in which the ordinates of the structural shape are squared. The moment of inertia is obtained by cubing the ordinates. In this method great care must be exercised in applying the proper correction for the scale of the section and for that of the squared or cubed figure. Another feature which complicates this method is the fact that care must be used in setting to the proper scale the planimeter which is used to measure the area of the squared or cubed figure. Considerable skill is required in choosing the scale for the squared or cubed figure to insure that the layout will be confined to the limits of the drawing board.

In the following method the figure is laid out to any convenient scale, preferably large enough so that the area of the pencil lines themselves will be a negligible part of the actual area of the figure. This is essential in thin metal sections as illustrated in the accompanying example. The complete layout is confined to the space occupied by the original figure.

In the determination of the neutral axis and the radius of gyration the result is in the form of a proportion and not a

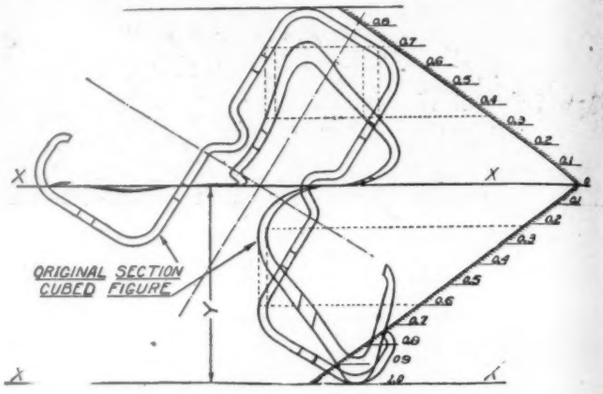


Fig. 2. Radius of gyration and moment of inertia

dimension, so that neither the scale of the drawing nor that of the planimeter has any bearing on the result.

Locating the Neutral Axis

Where several neutral axis are to be found for the same structural section the most simple procedure is to first locate the center of gravity which is the intersection of any two axis. If, by virtue of symmetry, the location of one principal axis is apparent without calculation, then the problem is simplified since only one axis must be solved for in order to locate the center of gravity.

The following method, illustrated by Fig. 1, applies to any irregular section for the location of the neutral axis:

1. Lay the figure out accurately to a scale as large as is convenient.
2. Draw lines *A-B* and *A'-B'* tangent to the section and parallel to the axis which is to be determined.
3. Using an engineers' scale and compass or dividers, divide the distance between lines *A-B* and *A'-B'* into ten equal parts.
4. Draw a line through each of these divisions parallel to *A-B*, and where this line intersects the section project a perpendicular line downward. Measuring from line *A-B* lay off the square of the ordinate on this line (using as a reference scale *B-B'*).
5. Connect the points thus obtained with a smooth curve. If the tenth divisions do not furnish a sufficient number of points subdivisions may be added where needed.
6. By means of a planimeter measure the area of the section and the area of the squared figure.

If A_1 = area of the section
A_2 = area of the squared figure
D = depth of the section
X = distance from *A-B* to the neutral axis

Then $\frac{X}{D} = \frac{A_2}{2A_1}$

Determining the Radius of Gyration

The determination of the radius of gyration and moment of inertia for any irregular figure about any axis is illustrated by Fig. 2. The following is the procedure:

1. Lay the figure out accurately to as large a scale as is convenient.
2. Draw the neutral axis X-X' in its proper location. Also draw the line X'-X' parallel to the axis and tangent to the extreme fiber of the section.
3. Divide the distance between lines X-X and X'-X' into ten equal parts and draw lines through these divisions parallel to the axis. Draw similar lines with the same spacing on the other side of the neutral axis.
4. Cube each ordinate of the section and draw the cubed figure.

If A = the actual area of the section
A_1 = the area of the section as laid out
A_2 = the area of the cubed figure
Y = the maximum ordinate(as measured from the neutral axis)

$$S = \text{the scale of the drawing} = \frac{Y \text{ (as drawn)}}{Y \text{ (actual)}}$$

K = radius of gyration (actual)
I = moment of inertia (actual)

$$\text{Then } \frac{K}{Y} = \sqrt{\frac{A_2}{3A_1}}$$

$$A = \frac{A_1}{S^2}$$

$$I = \frac{Y^4 \text{ (as drawn) } A}{3S^4}$$

$$\text{or } I = \frac{Y^2 \text{ (of actual section) } A_2}{3S^2}$$

If only the radius of gyration is to be determined, the scale of the planimeter used for measuring the areas is of no consequence but if the area and moment of inertia are required, then the planimeter must be adjusted to the proper scale.

Aero. C. of C. Elects Officers

The organization of the Aeronautical Chamber of Commerce of America, Inc., was completed on March 15 with the election of its officers.

Grover C. Loening, President of the Loening Aeronautical Engineering Corp., was elected President; Charles F. Redden, President of Aeromarine Airways, was elected First Vice President; C. C. Witmer, President of the Airship Manufacturing Co. of Hammondsport, N. Y., Second Vice President; B. E. Bushnell of the Stewart Hartshorn Co., Treasurer; Samuel S. Bradley of the Manufacturers' Aircraft Association, Secretary and General Manager; Luther K. Bell, Director of Information, Aeronautical Chamber of Commerce, Assistant Treasurer and Assistant Secretary.

Grover C. Loening, elected president of the Aeronautical Chamber of Commerce

Five Governors were also elected. They are: Frank H. Russell, Vice President of the Curtiss Aeroplane and Motor Corp.; John M. Larsen, President of the J. L. Aircraft Corp.; F. B. Rentschler, President of the Wright Aeronautical Corp.; Charles H.. Colvin, General Manager of the Pioneer Instrument Co., and Lawrence Sperry, President of the Lawrence Sperry Aircraft Corp.

Cross Country Flying in the A. S.

It is estimated that during the calender year 1921 a total of 5,063,909 man miles were flown by the Air Service personnel on cross country flights. These figures cover only flights exceeding a distance of ten miles from an airdrome with a definite destination in view, either with the purpose of landing at that destination or returning from the destination upon completion of the specific purpose of the flight without landing away from the airdrome.

By man miles is meant the number of miles flown by each man in any one plane, i.e., a plane carrying two people and traveling to a station 50 miles distant and return will carry out 200 man miles of cross country flight. The tabulation given below shows the number of man miles flown at the various Air Service stations, from which it will be noted that Post Field, Fort Sill, Okla., heads the list with 826,084 man miles. The Commanding Officer of that station states that the total time flown by all pilots at the field—9836 hr., at 85 m.p.h., total 836,060 miles or, based on two persons in each ship on each flight, the man miles total 1,672,120, approximating a distance equal to 67 times around the world.

LOCATION	MAN MILES
Aberdeen Proving Grounds, Md.	80,000
Americus, Ga.	6,700
Bolling Field, Anacostia, D. C.	230,000
Carlstrom Field, Arcadia, Fla.	198,175
Chapman Field, Miami, Fla.	755
Crissy Field, Presidio San Francisco, Calif.	132,710
Chanute Field, Rantoul, Ill.	85,000
Douglas, Arizona	36,550
Ellington Field, Houston, Texas	125,912
Fort Bliss, Texas	23,410
Fort Riley, Kansas	1,600
Fairfield Air Intermediate Depot, Ohio	30,660
France Field, Panama Canal Zone	43,397
Godman Field, Camp Knox, Ky.	50,510
Kelly Field, San Antonio, Texas	489,904
Luke Field, Hawaii, H. T.	114,705
Love Field, Dallas, Texas	30,963
Langley Field, Hampton, Va.	506,832
March Field, Riverside, Calif.	541,600
Mather Field, Mills, Calif.	807,119*
McCook Field, Dayton, Ohio	290,940
Middletown Air Intermediate Depot, Pa.	3,621
Mitchel Field, Long Island, N. Y.	133,045
Montgomery Air Intermediate Depot, Ala.	62,769
Nogales, Arizona	43,270
Park Field, Millington, Tenn.	2,000
Pope Field, Fayetteville, N. C.	22,405
Post Field, Fort Sill, Okla.	826,084
Rockwell Air Intermediate Depot, San Diego, Calif.	36,096
Ross Field, Arcadia, Calif.	5,580†
San Antonio Air Intermediate Depot, Texas	29,930
Scott Field, Belleville, Ill.	6,200
Selfridge Field, Mt. Clemens, Mich.	5,710
Vancouver Barracks, Wash.	225
Hqrs. 1st Corps Area	28,900
Hqrs. 2d Corps Area	7,950
Hqrs. 5th Corps Area	13,082
Hqrs. 6th Corps Area	6,000
Hqrs. 7th Corps Area	3,600
Total	5,063,909

It may be safely assumed that the largest majority of these cross country flights were made with two occupants in the plane, but there have been many instances where flights were made in single-seater planes or in other types of planes where the pilot was the only occupant of same. Estimating on a conservative basis that, say, 10 per cent of the number of cross country flights were made with the pilot as the sole occupant of the plane, and the remaining 90 per cent with two occupants in the plane, we would have as the total distance actually traveled by airplanes on cross country flights during the calender year of 2,785,150 miles. This figure, of course, does not represent all flying done in the Air Service during the year, as flights made at the different fields, other than cross country flights, are not included.

* Including Forest Patrol.
† Free Balloon Flights.

Should Our Airships be Limited in Size?

Why the Council of Ambassadors Refused America's Claim for a New Zeppelin of 100,000 Cubic Meters

Reports that commercial airships built or fabricated in Germany for America will be limited as to size, if permitted at all, which recently reached Washington from Berlin, have been characterized as doubtful by American air officers.

Airship Politics

Basing their opinions on the fact that the recently concluded Arms Conference placed no limit on either size or type of aircraft, and on the specific authority of the Council of Ambassadors permitting the construction in Germany of a large commercial airship for the U. S. Navy, these officers point out that the interests of this country could only be obstructed intentionally by either Great Britain or France. The former might attempt to prevent the arrangement owing to national jealousy or for commercial reasons, and France because of a fear of aerial attacks from Germany if her airship industry is permitted to flourish, it was said.

One possible reason for objections on the part of Great Britain, is said to be that if she cannot control the air as well as the sea, she is loth to let America get started in lighter-than-air construction. England has still to hear from her dominions relative to their willingness to aid in the financial support of her contemplated "imperial airship scheme" which would link the mother country to their shores. Their replies are due next month, and it is believed that Australia, New Zealand and South Africa will agree to support the project, although Canada may not on account of the bad weather prevalent off her Atlantic coast.

The recent announcement from London that Great Britain has abandoned her airship project and that the rigid fleet with its accessories will soon be dismantled for want of a bidder is not credited in Washington, for it is pointed out that the final reply of the Dominions is still in abeyance.

Source of the Report

The source of this report, which savors propaganda, may be readily determined by a simple process of elimination, air officers believe. It is certainly not Germany, as that country, being the creator of the rigid airship industry, is anxious to preserve her pioneer position; France, though apprehensive of Germany in the air, could hardly suspect American agression in the air, while if the United States did secure a couple of German ships, this would hardly keep the German interests active for more than a year or two; then too they say despatches from Paris indicate that Americans there feel confident that no effort is being made to prevent the building of the American ship; Italy is not anxious about any possible attack from an American air armada; but in England, despite her previous assistance to this government in securing the permission of the Allied Council for the construction of a rigid in Germany, there lies a possible reason, it is said. Great Britain at one time wanted to take over the German airship works and operate them for the Allies, and she still has her lighter-than-air fleet, reports to the contrary notwithstanding. This fleet, though not in commission, is still held pending the decision of the Dominions as to future transoceanic airship lines. England, it is pointed out, is jealous of the remarkable growth of the French merchant air fleet, and also looks askance at recent developments which indicate American interest in commercial airship lines.

Fate of Germany's Rigids

It is also to be noted that England has an air officer in Germany today. Air Commodore Masterman, R.A.F., who heads the Inter-Allied Aeronautical Commission in Berlin, from where the recent stories of limiting the size of America's Zeppelin and of possible prohibition on construction came.

The history of the German airship case goes back to the treaty of Versailles which provided that all German aircraft be turned over to the Allies. At the time there were fourteen large German rigids in existence. Seven ships were delivered; two each to England, France and Italy and one to Japan, but none to the United States. The remaining seven were in the meantime illegally destroyed in Germany. Following this action, the Allied Reparation Commission directed that Germany replace the destroyed ships by cash payment, or in kind if the Allied or Associated powers so desired. The commercial airships Nordstern and Bodensee were seized and turned over to France and Italy respectively, leaving five due from Germany. None of the Allies requests further ships, principally because of France's fear that if Germany were permitted to continue airship manufacture it would constitute a menace to her.

What is a Military Airship?

The United States was entitled to two airships, and it was her first choice, as France had received the L72, and England the L71, the two best and largest of the original German fleet. Only one ship was asked for by this government, however, when after the destruction of the ZR2 Great Britain was asked to assist America in securing a reparation ship of 100,000 cu. m. capacity. It is claimed that the Council, at England's request, ruled that any rigid airship of over 30,000 cu. m. capacity was a military ship and could not therefore be constructed in Germany, although British air experts had previously stated that an airship of less than 100,000 cu. m. was valueless as a commercial carrier. This discrepancy was pointed out to the Council, however, with the result that finally they permitted the United States to have constructed in Germany an airship of 70,000 cu. m. capacity, or about 2,450,000 cu. ft. of the L71 type, for commercial purposes. Today three Naval air officers are enroute to Berlin to supervise the laying out of the plans and the construction of this craft.

There was another difficulty to be surmounted in the securing of a rigid airship for the United States, on which the Secretary of the Navy made the following statement:

An Official Statement

"It now appears that the valuation placed on the seven destroyed Zeppelins by a Technical Commission operating under authority of the Treaty of Versailles, which the United States was not a party to, was placed at so low a figure that a credit which the United States was assigned by the Allies on the reparations account to cover two destroyed ships is insufficient to cover what the Germans claim to be the cost of building one ship of a modern design under present conditions in Germany.

"The Navy Department has taken the position that no payment of money will be made to Germany for the one airship, and that the extremely low valuation placed upon destroyed ships by the Allies in 1919 and the high estimate now given by the German Government for a single replacement ship in 1922 must be reconciled. The State Department is now conducting negotiations with all parties interested in order to make it possible for the German Government to proceed with the construction of an airship in accordance with the specifications of the Navy Department which is representing the Army and the Navy in this matter."

Why the Limitation?

In consequence of the above stated concern demonstrated by British representatives in the efforts of this country to secure a large commercial airship, the attitude of the Allied Council and the "no aerial-limitation" policy adopted by the Arms Conference, American lighter-than-air experts are at a loss to understand why the subject of limiting the size of American airships, whether built or fabricated in Germany or not, is being agitated now.

Italian Aeronautical Competitions, 1922

Regulations Issued by Italian War Department Provide for Contests of Airplanes, Seaplanes, Balloons and Parachutes

Four aeronautical competitions of international character, to be held during the current year in Italy, are announced by the Superior Command of Aeronautics, War Department, Rome, which office supervises Italian military and civil aeronautics.

The four competitions are, first, the Grand Cup of Italy (airplanes); second, the Grand Cup of the Tyrhennian Sea (seaplanes); third, the Angelo Berardi Grand Prize (free balloons); and fourth, a Parachute Contest.

The general regulations of these competitions, issued by Col. A. Guidoni, Italian air attaché in Washington, D. C., are as follows:

General Regulations, Grand Cup of Italy

ART. 1

In order to promote the development of aeronautical construction of commercial character, the Ministry of War creates a trophy called Grand Cup of Italy, valued at Lire 30,000. This trophy will constitute an International Challenge open to all aircrafts of Class C, (airplanes), and will be competed for according to the conditions established in the following articles.

The following prizes are to be awarded annually: 1st. prize, Lire 150,000; 2nd prize, Lire 50,000.

ART. 2.

The trophy will be awarded to the winner of the first prize.

ART. 3

The trophy will be competed for three successive years at the time assigned in the detailed regulations.

ART. 4.

The National Federation recognized by the International Aeronautical Federation (F.A.I.) in which the winner of the trophy is entered will temporarily hold the trophy until the successive assignment.

The trophy will be definitely awarded to the firm which won it twice in succession, or if that is not the case it will be awarded to the winner of the third year's contest. If the second prize is not assigned the relative amount will be awarded to the winner of the first prize.

If in the second year there are no contestants, or if there is no winner, the trophy (together with the prizes) will not be awarded, but will continue to remain with the Federation which won it the previous year. However, this Federation cannot, for this reason, be considered to have won the contest twice.

ART. 5.

Every year before Jan. 1, the Aero Club of Italy will publish the detailed rules according to the General Regulations of the F.A.I., taking in consideration the progress of aviation.

The Aero Club will also appoint the jury for the distribution of the prizes and trophy; on this jury two experts, appointed by the Ministry of War (Superior Command of Aeronautics), will sit.

ART. 6.

Only airplane constructors may enter the race, through their respective National Federation.

Each firm may enter not more than two airplanes, and each Federation may enter not more than three firms.

The application must be forwarded annually to the Aero Club of Italy not later than May 31.

Each application must be accompanied by the sum of Lire 1000 for each airplane entered.

Lire 500 will be reimbursed for each airplane that has passed the starting point.

ART. 7.

The trophy will be contested for in Italy, on a closed circuit of 2000 km.

The 2000 km. may be covered by flying over a smaller circuit several times, provided the smaller circuit is not less than 500 km.

The distance must be covered in the following manner:

(*a*) Three intermediate landings are obligatory (not including the return to the starting field.)

(*b*) At least one of the landings (including the return to the starting field) must be made at night, that is, three hours after sunset (local hour), or else two hours before sunrise (local hour).

(*c*) No change of airplane, or of engine, is authorized, but pilots may be changed.

(*d*) Only three replenishings of fuel and oil will be allowed (not including that at the start).

(*e*) The machines must carry a commercial load of at least 250 kg., the commercial load comprising the total useful load minus the weight of the pilot or of one pilot in case the airplane should have dual control, of fuel and oil and instruments. The weight of each pilot will always be figured at 80 kg.

(*f*) All machines must be equipped with tachometer, clock, gages, altimeter, compass, air speed indicator, and turn indicator.

(*g*) Before the start all the machines must demonstrate in an elimination race to have a minimum speed of not more than 80 km.p.h.

(*h*) The start must be effected with the full load.

(*i*) Radio apparatus carried will be considered as being part of the commercial load.

ART. 8.

Only the machines which have completed the entire distance established in Art. 7 will be considered as having finished.

The classification of the prizes will be made by multiplying the commercial speed reached in the total distance covered by the commercial load carried, divided by the fuel and oil consumption per hour. It is understood, by commercial speed, the distance covered divided by the time consumed from the first start to the last landing; by commercial load that defined in paragraph *e* of Art. 7; and by fuel and oil consumption per hour the total consumption of fuel and oil divided by the total time in which the machine has been actually in the air.

The first prize and the trophy will be awarded to the firm which has obtained the highest factor; the second prize will be awarded to the firm having obtained the next highest factor. If two or more contestants obtain the same factor, the best and most rational installation of the instruments of navigation, will, in the non-appealable judgment of the jury, determine the award.

ART. 9.

The Ministry of War reserves the right to buy the Italian machine or machines which have shown themselves being worth particular attention in the race, this up to the amount of L.200,000.

ART. 10.

The competitors and the pilots of the competing machines must have the nationality of the Federation which enters them, excepting the countries which are not affiliated with the F.A.I.

ART. 11.

The Military Administration does not assume any responsibility other than that of awarding the Trophy and of paying the prizes to the firms which have been declared winners by the Jury. The said Administration will not participate in the disputes that may eventually arise in regard to the adjudication of the Trophy and prizes and will assume no responsibility whatever. Neither will the Administration assume any responsibility for any damage that may possibly occur to any of the competing firms, or to third parties, in connection with the race which is subject to the present regulations.

ART. 12.

The detailed regulations will cover all clauses of customs and administrative character.

General Regulations, Grand Cup of the Tyrhennian

ART. 1.

In order to promote the development of aeronautical construction of commercial character, the Ministry of War creates a Trophy, called "Grand Cup of the Tyrhennian" valued at Lire 30,000. This trophy will constitute an International Challenge for seaplanes (class C) and will be contested for in accordance with all the conditions already specified for the Grand Cup of Italy.

The following prizes are to be awarded annually: 1st prize, Lire 150,000; and 2nd prize, Lire 50,000.

ART. 2.

The circuit of 2000 km. over which the trophy will be contested, must be situated in Italian territorial waters and on the open sea; and it must at least include one point of the west coast of Italy, and at least one point of the two major islands (Sicily and Sardinia).

ART. 3.

As it has already been stated for the Grand Cup of Italy, the competing machines, before starting must undergo: (*a*) a water tightness test of the floats; and (*b*) a test of seaworthiness, the conditions of which will be specified in the detailed regulations.

ART. 4.

All other provisions governing this competition will be identical with the General Regulations for the Grand Cup of Italy.

General Regulations Angelo Berardi Grand Prize

ART. 1.

A race for free balloons is to be held in the year 1922, in honor of the memory of Angelo Berardi, the great aeronaut, whose name it will perpetuate as "Angelo Berardi Grand Prize."

ART. 2.

The race will have an international character. It will be a distance contest, but if the atmospheric conditions warrant it the race may be changed to a duration contest. The Contest Committee will determine the nature of the contest with a non-appealable decision before the start.

ART. 3.

All the balloons of the second and third classes, General Regulations of the International Aeronautical Federation, may enter in the race.

ART. 4.

The following prizes will be awarded at the race: First prize, Lire 15,000; second prize, Lire 10,000; third prize, Lire 5,000.

ART. 5.

The race will take place between May 15 and Sept. 15.

The detailed regulations will be drawn up by the Aero Club of Italy, which will render them public not later than Feb. 28, 1922.

ART. 6.

All the Federations and Aero Clubs associated with the International Aeronautical Federation may compete in the race.

Each Federation and Club may enter three pilots, appointing at the same time a substitute pilot for each one entered.

The applications must be forwarded to the Aero Club of Italy not later than April 15, and must be accompanied by Lire 750 for each entry.

Lire 250 will be reimbursed for each balloon that will take the start.

ART. 7.

The gas will be furnished by the Ministry of War (Superior Command of Aeronautics) at cost price.

All the balloons must be inflated with gas having the same origin (H).

ART. 8.

The Military Administration does not assume any responsibility other than that of paying the prizes to the competitors who have been judged winners by the Jury.

The said Administration will remain outside of all disputes that may arise in regard to the adjudication of the prizes, and will not assume for said adjudication any responsibility. Neither will the Administration assume any responsibility whatever for the damages that may be caused to the balloons or to third parties in connection with the race which is subject to the present Regulations.

ART. 9.

The detailed regulations will cover all clauses of administrative and customs character. Two experts appointed by the Ministry of War will sit on the Jury.

General Regulations, Parachute Contest

ART. 1.

In order to promote the use of parachutes, the Ministry of War will hold in the year 1922 a parachute contest from a flying airplane, with a prize of Lire 50,000 divided as follows: First prize, Lire 30,000; second prize, Lire 15,000; third prize, Lire 5,000.

The contest will have an international character and will take place in Italy. It will consist of a parachute jump from a flying airplane at an altitude of not more than 1000 m. (3300 ft.) over the field of competition.

The prizes will be awarded to the competitors who reach the ground without accident the nearest to a predetermined point.

ART. 2.

The detailed regulations of the race will be drawn up and made public by the Aero Club of Italy not later than six months before the time established for the race.

ART. 3.

The competitors must participate in the race with airplanes of their own.

ART. 4.

The competitors must be entered in the race by the National Federation to which they belong; in case their native country has no Federation represented in the F.A.I., then they may enter through another Federation.

Each Federation may enroll three competitors. Each subscription must be accompanied by the sum of Lire 100 of which Lire 50 will be reimbursed when the competing airplane has taken off in the race.

ART. 5.

The Military Administration does not assume any responsibility other than that of paying the prizes to the competitors who have been declared winners by the Jury. The said administration will remain outside of all disputes that may eventually arise in regard to the adjudication of the prizes, and it will not assume for said adjudication any responsibility. Neither will the Administration assume any responsibility whatever for the damages that may be caused to the parachutes, or to third parties, in connection with the race which is subject to the present regulations.

ART 6.

The detailed Regulations will cover all clauses of customs and administrative character. Two experts appointed by the Ministry of War will sit on the Jury.

Easter Airways to Start Operations

Easter Airways, Inc., with offices at 1403 Fidelity Building, Baltimore, which has just been organized to enter the field of commercial aerial transport has the following officers: P. Ewing Easter, president and general manager; Conway W. Cooke, vice president; C. Delano Ames, secretary; John S. L. Yost, treasurer; Maloy, Brady, Howell & Yost, attorneys.

For the present the company will confine operations exclusively to seaplanes. The first of these, an Aeromarine HS2L six passenger open boat, will start this week on a flight along the Atlantic seaboard to Key West and Havana, returning to New Orleans, thence up the Mississippi River to St. Louis, along the Ohio to Pittsburgh, returning to Baltimore via the Great Lakes and the Hudson River to New York. On this trip the ship, which will be piloted by P. Ewing Easter, will call at towns and cities along the route to carry passengers for short pleasure flights at a reasonable fare.

The Dugit Altimeter and Air Speed Indicator

Instruments Based on Application of Archimedean Spiral Give Increased Precision and a Uniform Sensitiveness

By J. H. Blakely

The greater part of industrial meters give the reading of the number sought by the angular displacement of a needle moving in front of a dial. If the quantity to be measured depends upon two variables, its reading is arrived at by the employment of two needles whose angular displacements are respectively a function of each variable, the point of intersections upon appropriate curves giving the value required. The principal objection to this method is its lack of precision, and also, in most cases, the differing sensitiveness at the two extremities of the scale.

Principle of the Archimedean Spiral

About a year ago, MM. Barbillion and Dugit presented at the meeting of the French Academy of Sciences two communications upon a new type of meters of their invention, which have been found to have a constant sensitiveness and a precision of reading which is not common in industrial appliances of this kind. Several applications of this principle have been made for different classes of technical use.

It is always possible to replace the circular graduation of these appliances by a rectilinear graduation, in which the divisions are proportional to the ares. If we consider a curve S (Fig. 1), turning around its pole O, and if it is required that any variation of the length of the radius vector dp correspond to an angular displacement dw, so that the relation of these two quantities be constant, we shall have

$$\frac{dp}{dw} = k \text{ the law of correspondence being}$$

$$p = kw + a \text{ constant}$$

If, therefore, an Archimedean spiral is turned around its pole, it will cut its radius vector in points equidistant for equal angular displacements. And reciprocally, if a straight line turns around the pole, it will cut an Archimedean spiral in the same plane, in points equidistant for equal angular displacements.

Applying the Principle to Altimeters

An application of this principle has been made to altimeters for airplanes. Altimeters with circular graduation show a considerable variation from one end of the scale to the other. The same meter therefore can not be made to serve for both high and low altitudes without being so large as to be cumbersome. The dial must also be movable, to permit an initial regulation to correct the instrument for local barometric pressure. The readings are then liable to be inaccurate from the fact that, at equal altitudes and at different barometric pressures, there is no longer absolute concordance between the law of displacement of the needle and that which has served to graduate the instrument. The use of a needle on an Archimedean spiral gives readings on a rectilineal scale with equally spaced divisions, which is easily adjusted for local corrections.

The dial of this instrument is shown in Fig. 2. In front of a scale A graduated in kilometers moves an Archimedean spiral B, which by its intersection with the scale gives the altitude in kilometers; a second scale D gives the value of the hectometers by its intersection with the spiral E, which makes one turn each time that B has advanced by one division.

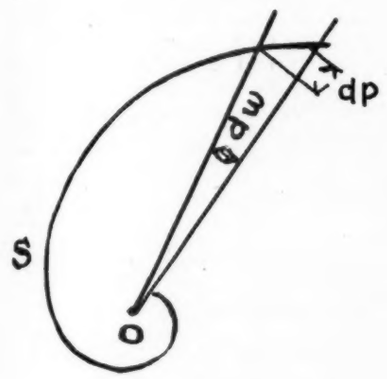


FIG. 1

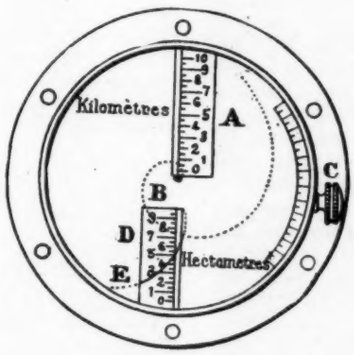


FIG. 2

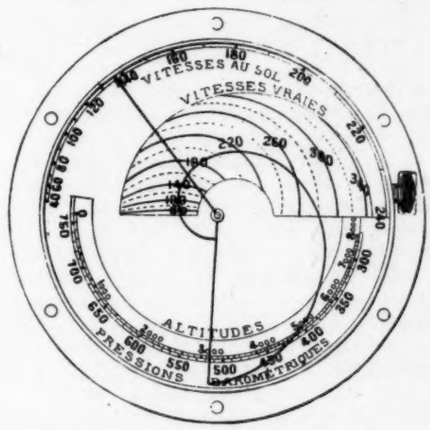


FIG. 3

The adjustment of scales A and D is made by means of a milled head C.

A number of applications of this principle have been made for meters of one variable, such as voltmeters, ammeters, manometers, etc.

Errors in Instruments

Instruments for the measurement of two variables have not been very satisfactory on account of their lack of precision. These generally have a dial over which move two needles, whose angular displacements are respectively a function of each variable. Their point of intersection must be found on a group of curves representing, in bipolar coordinates, the fuction to be measured. Errors of parallax, inexact determination of the point of intersection at certain angles, the distribution of the curves on a small part of a dial of limited dimensions, limit considerably the precision of the readings. If curved needles are used, and they are made to turn around concentric axes, they can be given a rotation of 360 deg. in requiring but one intersection, and consequently the curves can be distributed over the whole surface of the dial, instead of only that part between the two axes of rotation. The reading is thus much more easy and precise. Among the instruments built on this principle is an air speed indicator for airplanes, which makes use of a Venturi device and of a barometer.

If V designates the speed of displacement of the air in the Venturi, d the density of the air, P_1 the atmospheric pressure, and P_2 the pressure at the throat of the Venturi, these quan-

tities can be expressed by the formula: $P_1 - P_2 = kdV^2$, where K is a coefficient depending upon the Venturi.

Fig. 3 represents the dial of this instrument. The curved needle is displaced proportionally to the variations of barometric pressure; it is controlled by the barometer. The straight needle is moved by a manometer connected to the throat of the Venturi; its displacements, which are proportional to the product kdV^2, indicate the speed of the airplane at zero altitude, without making correction for density. The intersection of the two needles moves over a group of curves, obtained by calculations of variations of the density in function of the atmospheric pressure. The instrument therefore shows with sufficient precision the speed of the airplane in relation to the wind.

To be absolutely exact, it is necessary to take account also of the variations of the density of the air in function of its temperature; a model of the instrument has been made in which a relay thermometer acts upon one of the needles so as to take into account this complementary variable.

By the use of the curved needle there has also been designed a "carburoscope" for the purpose of indicating to the air mechanic whether the proportion of the weight of air to the weight of fuel consumed in a given time is good. The weight of air depends upon its density, therefore upon the atmospheric pressure P_1; the weight of the fuel depends upon the pressure $P_1 - P_2$ in the neighborhood of the atomizer. An instrument similar to the preceding indicates at each moment the value of the relation $\frac{P_1}{P_1 - P_2}$, and so permits the adjustment of the depression $P_1 - P_2$, therefore the carburation.

—*Translated from Le Genie Civil*

A Letter

Editor, AVIATION:—

I read with interest your article about Soaring Flight and Soaring Aircraft in the Feb. 13th issue of your magazine. As I took intimate part in the preparations and the management of the 1921 Rhoen Competition and was in the Rhoen, while it took place, I beg to correct certain apparent discrepancies in your article.

The machine which was awarded the highest amount of prize money was not the München glider, but the Hanover glider. It won Mark 21,000, comprising the first prize in the industry contest, some second and third prizes, and moreover the Kyffhäuser prize for the wing of best design. The München and Aachen gliders won but M 15,000 and M 13,000.

The industry contest, donated by the Association of German Aircraft Manufacturers, had the name: "Contest of the highest gliding factor." However, it required besides a low gliding angle also special performances, which could be made only by gliders of superior airworthiness: A complete circle of 360 deg. had to be flown. Martens on the Hannover glider completed even two circles in the same flight and had nevertheless a better gliding angle, measured from starting to landing point, than the next competitor, who made one circle only.

The München glider had no elevator but it had a fixed stabilizer, and the whole wings tilted by connecting rods. The wings were not warped. This device gives a very rapid control to the pilot, but it has the disadvantage that at high speed the airplane becomes noseheavy. I am aware of that, because it was for this reason that the technical commission, consisting of Dr. Ing. Hoff, Adreshof, Dr. Ing. Eisenlohr, Karlsruhe, and myself, hesitated before allowing the starting of this plane. Moreover, I have also some photographs from which this fact may be seen.

The machine in which Leusch was killed did not "side slip in a turn." It was a wonder of stability: models of it performed the most wonderful flights, staying for several minutes in a gusty wind. After a very remarkable flight, in which the pilot gained about 200 ft. of altitude, the wing twisted and broke. I feel fully familiar with this case because the above mentioned technical commission was charged with the investigation of the causes of the accident.

The Richter monoplane, Fig. 1, has not been in the Rhoen. Richter has made some short jumps only in a flat country near Berlin.

GEORGE MADELUNG

New Stabilizer to be Tested

One of the JN4D training planes at Mather Field, Mills, Calif., has been turned over to the Aerial Mail Service for the purpose of making experimental flights to test the Converse Stabilizer, a small device which its inventor, who has been working on it for many months, claims will hold the ship longitudinally balanced, regardless of conditions. That part of the stabilizer controlling the ship latitudinally has not been perfected.

Simplified Theory of the Magneto

N. A. C. A. Report No. 123

This paper contains part of the results of ignition investigations being made for the National Advisory Committee for Aeronautics at the Bureau of Standards, and describes a type of circuit which has been found useful for representing the action of the high-tension magneto. While this equivalent circuit is relatively simple, and consequently can be used as a basis for deriving definite mathematical formulas for induced voltages and similar quantities, it has been found experimentally to correspond quite closely in its performance with the highly complicated electrical circuits of an actual magneto. In the paper formulas are given for the voltage induced in the secondary under various conditions of operation, and a number of numerical examples worked out showing the application of the equations to a variety of practical problems.

A copy of report No. 123 may be obtained upon request from the National Advisory Committee for Aeronautics, Washington, D. C.

Our Cover Illustration

Our cover illustration shows the Huff-Daland "Petrel" commercial three-seater (Curtiss OX5) when it was carrying passengers from the surface of the frozen St. Lawrence river in front of the company's plant, recently. The pilot was George B. Post, vice-president of the company. Snow drifts from eight to twelve inches deep were encountered, greatly handicapping the take-off and landings, but the flying was accomplished without serious difficulty.

During tests which were witnessed by company officials and by G. A. Giroux, the resident naval representative at the plant, and carrying the full military load with two passengers and four hours fuel, the machine climbed 7000 ft. in 22 min. with an initial climb rate of 510 ft. per minute. Later in the afternoon it was put over a measured mile layed out upon the ice, and in a series of eight runs with and against a four mile wind, showed an average speed of 88 m.p.h., with a maximum of 93 m.p.h. in the first two trials. So far as is known the climb and high speed established are greatly in excess of anything ever before approached with the OX5 engine.

The Third Rhoen Meeting

The third German soaring flight competition, which will be held in August next in the Rhoen hills, will for the first time since the institution of these meetings make a distinction between soaring and gliding aircraft. According to our contemporary *Flugsport*, only those aircraft will be considered as soarers which have demonstrated of having an average sinking speed (rate of descent) of 3.6 ft. per sec.

This distinction between soarers and gliders was adopted in order to afford the latter an opportunity to win prizes, and so encourage the development of pure gliders as well as soarers.

"Who's Who in American Aeronautics"

(Copyright, 1921, by The Gardner, Moffat Co., Inc.)

The biographical sketches of men who are prominent in American Aeronautics are printed periodically in AVIATION. The first series will be shortly published in a more durable form, and revised issues will be published semi-annually to take care of the frequent changes in station of Army and Navy officers, and such other changes as may occur. As errors and omissions are liable to occur in a compilation of this character, interested parties are requested to notify "Who's Who" Editor of the necessary corrections so the record may be kept up to date.

Victor H. Dill

DILL, VICTOR H., Aeronautical Mechanical Engineer; born, Anna, Ohio, Aug. 30, 1881; son of Russell B. Dill and Emily P. Dill; married, Alice Mary VanRiper, Sept. 6, 1904.

Educated: High School of Sidney, Ohio; B.S. 1903; C.E. 1913, Case School of Applied Science, Cleveland, Ohio.

Professional: 1903-1912, Designing and Estimating Engineer, Central States Bridge Co.; 1912-1914, Chief Engineer, Pan American Bridge Co.; 1914-1917, Contracting Engineer, Indiana Bridge Co.

Aeronautical Activities: 1917-1922 (May 24, 1917 to date) Aeronautical Mechanical Engineer in War Department, Air Service; Project Engineer in special technical balloon and airship equipment used by the U. S. Army Air Service in the housing mooring and docking or airships, such as hangars, mooring masts and docking rails.

War Service: In civilian status with U. S. Army Air Service, May 1917 to date.

Present Occupation: Aeronautical Mechanical Engineer.

Address: Air Service Engineering Division, McCook Field; home, 128 W. Fairview Ave., Dayton, Ohio.

Grattan Colley Dichman

DICHMAN, GRATTAN COLLEY, Lt. Comdr., U. S. Navy; born, New York City, Dec. 12, 1885; son of Ernest Dichman and Bessie (Grattan) Dichman; married, Louise Braxton Robinson, Oct. 11, 1916.

Educated: U. S. Naval Academy, July 1903 to June 1907.

Professional: Naval Officer.

Aeronautical Activities: Student, Oct. 1915 to May 1916; Naval Aviator, May 1916.

Flying Rating: Naval Aviator Certificate No. 30; French Military Brevet No. 7537; French Naval Brevet No. 347; Aero Club Expert No. 182.

War Service: May 1917 to end of war.

Member: Army and Navy Club (Wash. and Manila, P. I.).

Present Occupation: Lt. Comdr., U.S.N.

Address: Naval Air Station, Hampton Roads, Va.

Sherman Mills Fairchild

FAIRCHILD, SHERMAN MILLS, Manufacturer of Aerial Cameras; born, Oneonta, N. Y., April 7, 1896; son of George W. Fairchild and Josephine (Sherman) Fairchild.

Educated: Oneonta High School; Evans School; Harvard College; University of Arizona; Columbia University Engineering School.

Professional: President, Fairchild Aerial Camera Corp.

Aeronautical Activities: Inventor of Fairchild Aerial Camera and between-the-lens shutter.

Member: Aero Club of America; Aeronautical Chamber of Commerce; Harvard Club of New York City.

Present Occupation: Manufacturer of Aerial Cameras.

Address: Fairchild Arial Camera Corp., 136 West 52 St.; home, 30 East 55 St., New York City.

Henry J. E. Reid

REID, HENRY J. E., Engineer; born, Springfield, Mass., Aug. 20, 1895; son of Henry Reid and Sophia (Page) Reid; married, Mildred Woods, June 26, 1920.

Educated: Public schools of Springfield, Mass.; Technical High School; B.S. in E.E., Worcester Polytechnic Institute.

Professional: Automobile drafting and railroad engineering at Westinghouse, 1919-1920; in charge of Maintenance Dept. Noiseless Typewriter Co., 1920-1921; 1921, Instrument Section, National Advisory Committee for Aeronautics.

Aeronautical Activities: 1921, Observer and instrument design.

Member: Associate member, American Institute of Electrical Engineers.

Present Occupation: In charge Instrument Section, N.A.C.A.

Address: N.A.C.A. Langley Field; home, Sinclair Road, Hampton, Va.

Frank George Osgood

OSGOOD, FRANK GEORGE, Aeronautical Designer; born, Laconia, N. H., Oct. 8, 1890; son of William Osgood and Florence (Goodspeed) Osgood; married, E. Joyce Pickett, Jan. 15, 1920.

Educated: Public schools of Medford, Mass.; High School of Laconia, N. H.; three years, Lehigh University; Mass. Inst. of Tech.

Professional: Apprentice Machinist, 1906-1908; Apprentice Draftsman (Scott & Williams, Inc.) 1908-1910; Draftsman (Scott & Williams, Inc. and Laconia Car Co. Works), 1911-1912; Draftsman (Bethlehem Steel Corp.), 1912-1913.

Aeronautical Activities: Naval Aviation Inspectors School, M.I.T., Cambridge, Mass., Nov. 1917; Navy Inspectors School, Curtiss Co., Buffalo, N. Y., Jan. to April 1918; Inspector of Naval Aircraft in charge Production and Inspection, Burgess Co., Marblehead, Mass., April 1918 to Jan. 1919; under Sup't. Constructor of Aircraft, 1st Naval District; Bureau of Construction and Repair, Navy Department, Aviation-Lighter-than-Air Craft production and Parachute development, Jan. 1919 to Jan. 1920; Naval Aircraft Factory, 1920 to Aug. 1921; U. S. Army Air Service, Engineering Division, Balloon and Airship Branch, McCook Field; Aeronautical Designer to date.

War Service: Seaman, Nov. 14, 1917; Ensign, March 29, 1918; Lieut. (j.g.) Nov. 4, 1918.

Member: Technology Club; Pres., Airship Engineering Society of Dayton.

Present Occupation: Aeronautical Designer.

Address: Engineering Division, McCook Field; home, 709 N. Main St., Dayton, Ohio.

Thomas Lloyd Blakemore

BLAKEMORE, THOMAS LLOYD, Aeronautical Engineer; born, Vandalia, Ill., March 23, 1891; son of Thomas Howard Blakemore and Mary Jane Blakemore; married, Mary A. Sedgwick, Dec. 27, 1917.

Educated: B.S. in Mechanical Engineering, 1913, Washington University; M.S. in Aeronautical Engineering, 1917, Mass. Inst. of Tech.

Aeronautical Activities: Project Engineer for Class C. Airship, Navy Department, Washington, D. C., 1917-1918; Construction Engineer, Class C. and D. Airships, Goodyear Tire & Rubber Co. and B. F. Goodrich Co., for the Navy Department, 1918-1920; Aeronautical Engineer, Ft. Omaha, Nebr., Charge of Balloon and Airship Development, 1920-1921; Chief Balloon and Airship Branch of Lighter-than-Air Section, in charge of development of lighter-than-air equipment, 1921 to date.

Member: Society of Automotive Engineers; American Association of Engineers; Engineers Club of St. Louis.

Present Occupation: Aeronautical Engineer, Chief Balloon and Airship Branch of Lighter-than-Air Section.

Address: McCook Field; home, P.O. Box 592, Dayton, Ohio.

Philip Schneeberger

SCHNEEBERGER, PHILIP, Lieut., Air Service; born, Baltimore, Md., Nov. 27, 1887; son of Henry W. Schneeberger and Sarah N. Schneeberger.

Educated: Public schools of Baltimore, Md.; Baltimore City College; A.B. 1909, Ph.D. 1913, Johns Hopkins University.

Professional: Research chemist, Barber Asphalt Paving Co., Maurer, N. J., 1913 to 1917.

Aeronautical Activities: Training, Aug. to Dec. 1918; on flying status, Dec. 10, 1918; Free Balloon and Airship training, Dec. 1918 to June 1919.

Flying Rating: Aerial Observer, Dec. 23, 1918; Free Balloon Pilot, July 2, 1919; License No. 834.

War Service: R.O.T.C., Aug. 25, 1917; commissioned in Air Service, S.C., Nov. 8, 1917; Regular Army Commission, Air Service, Sept. 18, 1920.

Books: "Fractionation of California Petroleum", 1913.

Member: Johns Hopkins Club; Aero Club of America.

Present Occupation: Lieut., Air Service.

Address: McCook Field, Dayton, Ohio; home, Seville Apt., Baltimore, Md.

Harley Hannibal Christy

CHRISTY, HARLEY HANNIBAL, Captain, U. S. Navy; born, Circleville, Ohio, Sept. 18, 1870; son of John W. Christy and Rachel Martha (Oman) Christy; married, Helen Manuel, Sept. 4, 1895.

Educated: Public schools of Ashville, Ohio; 1891, U. S. Naval Academy.

Professional: Served continuously in the Navy.

Aeronautical Activities: Commandant, Naval Air Station, Pensacola, Fla., Oct. 15, 1919 to date.

War Service: U.S.S. Detroit, Spanish-American War, 1898; U.S.S. Annapolis, Philippine Insurrection, 1903 and 1904, U.S.S. Rainbow, 1904-1906; U.S.S. Salem (in command) Mexican Campaign, 1914; U.S.S. San Diego (in command), Aug. 1917 to July 1918, when vessel was sunk by enemy mine; U.S.S. Wyoming (in command), serving with British Grand Fleet from Sept. 1918 until hostilities ceased.

War Honors: Distinguished Service Medal; citation for meritorious conduct at the time the San Diego was struck by a mine and sunk; Medal commemorating the Naval Engagements in the West Indies; citation for service on U.S.S. Detroit in the bombardment of San Juan, Porto Rico, May 12, 1898.

Member: Army and Navy Club, (Wash.); U.S. Naval Institute.

Present Occupation: Commandant, Naval Air Station, Pensacola, Fla.

Address: U.S. Naval Air Station, Pensacola, Fla.; home, Navy Department, Washington, D. C.

Richard F. Hoyt

HOYT, RICHARD F., Banker; born, Revere, Mass., July 3, 1888; son of Charles Chase Hoyt and Emma Josephine Hoyt; married, Katherine Stone, Sept. 7, 1911.

Educated: Brookline grammar school; Volkmann Preparatory School; A.B. 1910, Harvard University.

Professional: Hayden, Stone & Co., bankers.

Aeronautical Activities: 1918, Assistant to Colonel J. G. Vincent, Aeroplane Engineering Department, McCook Field, Dayton, Ohio; Secretary and Assistant to President, Wright-Martin Aircraft Corp., New Brunswick, N. J.; since Jan. 1921, Chairman of the Board, Wright Aeronautical Corp.

Member: Board of Governors, Aero Club of America.

Present Occupation: Partner, firm of Hayden, Stone & Co., bankers.

Address: 25 Broad St., New York City.

W. L. Hamilton

HAMILTON, W. L., Commercial Aviator; born, Westville, N. Y., June 1, 1896; son of S. C. Hamilton and Mary B. Hamilton.

Educated: Oneonta High School; Oneonta Normal School; 1920, Columbia University.

Professional: Thomas-Morse Aircraft Corp.; Sales Manager, Aerial Photographer, Fairchild Aerial Camera Corp.

Aeronautical Activities: 1917-1919, Thomas-Morse Aircraft Corp., Test and Approval Field, Mechanical and Flight Tests; 1920-1922, Fairchild Aerial Camera Corp.

Present Occupation: Sales Manager, Fairchild Aerial Camera Corp.

Address: 136 West 52 St.; home, 424 Central Park West, New York City.

Adaline Joseph Bartoli

BARTOLI, ADALINE JOSEPH, Commercial Aviation; born, Woodland, Calif., July 1, 1892; son of John Bartoli and Paradise (Salani) Bartoli; married, Marie Richie, June 29, 1919.

Educated: Public schools of Woodland, Calif. and Lucca, Tuscany, Italy.

Professional: Aeroplane constructor; pattern and cabinet maker.

Aeronautical Activities: Joined the Irwin Aircraft Co. in 1915; building and operating aeroplane to date; learned to fly in 1914.

Present Occupation: Secretary, Irwin Aircraft Co.

Address: Irwin Aircraft Co.; home, 901 U Street, Sacramento, Calif.

Naval Aviation News

Atlantic Fleet Air Squadrons

Air Squadrons, Atlantic Fleet, consisting of Scouting Squadron No. 1 (F5L and NC Seaplanes), Torpedo Plane Squadron No. 1, and Kite Balloon Squadron No. 1, accompanied by four tenders, one of which is the recently commissioned U.S.S. Wright, have just arrived from Hampton Roads at Key West for winter operations.

All planes were flown from Hampton Roads, Va., to Key West, Fla., and Kite Balloon Squadron No. 1 is embarked on the U.S.S. Wright for passage. The tenders carry necessary equipment and spare parts for establishing a complete operation base at Key West for overhaul and upkeep of the air squadrons during a season's operation.

This change of base for operations is a "shaking down" cruise for the U.S.S. Wright and for Torpedo Plane Squadron No. 1. It amounts to a drill under actual service operating conditions for the entire air squadrons. The shifting of base of operations approximately 1000 miles was in itself a feat of no small proportion.

Capt. A. W. Johnson, U.S.N., Commander Air Squadrons, Atlantic Fleet, will conduct all operations from headquarters aboard the Wright. Torpedo Plane Squadron No. 1 will conduct trials and exercises with a view to perfecting torpedo attacks by aircraft against a battle fleet. Scouting Squadron No. 1 and Kite Balloon Squadron No. 1 will be working in conjunction with the U.S. Atlantic Battle Fleet which is basing at Guantanamo, Cuba, for their gunnery exercises during the winter.

Emergency Seaplane Radio Transmitter

One of the greatest dangers to seaplanes flying over the ocean has been greatly lessened by recent radio developments by the Navy; namely, the emergency transmitting equipment now carried on multi-motored machines which permits the sending of radio messages when a plane has been forced to land on the water.

The recent forced landing of a seaplane off the Florida coast will serve well to illustrate the value of this development. Had a Navy F5L seaplane had such an accident, she could have sent a radio message immediately and assistance rushed to the plane. The plane could have been found more easily by the rescue vessel not only because her position was known, but also because the kite which is part of the equipment would be visible at greater distances than the plane on the water.

Formerly a plane could use its radio only while in the air where the antenna consisted of 200 or 300 ft. of wire trailing behind the plane. Of course, when the plane landed this antenna could no longer be used. A second antenna, however, was available on some planes, permanently rigged on the upper wing, but only very short ranges could be obtained on this "skid-fin antenna", about ten or fifteen miles. With the new apparatus the ranges obtainable on the water are in general 25 per cent greater than those in the air.

The equipment for this transmission is very simple, weighing only a few pounds. There are two kites, one for stronger and one for light breezes, and a reel of specially light antenna wire. When necessary to send a message from the water the radio generator is put in the wind stream of the good motor, if it were not there already, and the antenna wire flown from the appropriate kite. A canvas screen rigged in the wind stream concentrates its force on the wind-driven generator fan, so that, with the motor running slowly, the radio generator will develop full power for sending messages. This work has been done through the Bureau of Engineering by the Anacostia Air Station Radio laboratory. Commander Taylor and Lieut. C. D. Palmer have done most of the field and design work in this connection.

While the outfit was developed for multimotored seaplanes, its field of usefulness is much wider. To mention two other uses: A disabled plane, either sea or land plane, can increase its chances of being found by rescue planes by flying the kite, and with a small expeditionary force a plane so equipped might well be used for all communication.

Lieutenant Wyatt Commended

For his heroism in saving the life of a brother officer, Secretary Denby has commended Lieut. B. H. Wyatt, U.S.N., of Kentucky, attached to the Air Squadron of the Pacific Fleet.

Immediately after the crash of a seaplane at the Naval Air Station, Pensacola, Fla., on Nov. 14, 1921, Lieutenant Wyatt dived overboard from another plane rescuing Lieut. Steadham Acker who having been rendered unconscious by the fall was submerged beneath the water. Lifting the injured man out of the water, he was placed aboard the station speed boat, where Lieutenant Wyatt administered first aid with the result that within a few minutes Lieutenant Acker began to breathe and show signs of life.

In the same accident 2d cl. machinist's mate A. B. Colton, aviation, USN, lost his life, and Lieut. L. D. Spaulding, USNRF, was injured.

Two views of the U.S.S. Langley, a large aircraft carrier now being completed for Naval Aviation

Orders

Lieut. George L. Compo, USN, has been ordered to the Naval Aircraft Factory at Philadelphia from the Pacific Air Squadrons.

Lieut. Wm. C. Colbert has also received orders to report to the Naval Aircraft Factory.

Ensign Benjamin B. Dowell on duty at San Diego Air Station has resigned to take effect April 30, 1922.

Schneider Cup Race at Naples

Following a resolution of the Aero Club of Naples which its General Secretary, Mr. Maisto, brought before the recent meeting of Directive Council of the National Aeronautical Federation in Rome, and which the latter recommended to the International Aeronautical Federation in its last meeting in Paris, the latter decided that the international race for the Jacques Schneider Marine Flying Trophy will be held in Naples in the latter part of August.

The great race will be held in conjunction with an International Seaplane Week with prizes totaling about 300,000 Lire, and including the Grand Cup of the Tyrhennian Sea created by the Superior Command of Aeronautics.

Loening Air Yacht in Florida

Lt. Comdr. David H. McCulloch, who has been flying the new Loening Air Yacht in Florida, has made a remarkably large number of successful trips day after day. This speedy air cruiser has become a very familiar sight at Palm Beach and Miami. Almost every day round trips to nearby places are made; particularly, round trips between Palm Beach and Miami, a distance of about 65 miles, which are regularly made in an average time of 35 min.

Considerably longer trips have, however, been made and among them the record breaking trip of Feb. 24, when Commander McCulloch flew from Nassau in the Bahama Islands to Palm Beach, an air-route distance of about 230 miles in 2 hr. 20 min., establishing a record far ahead of anything that has been done along this line. His passengers on this flight included Charles H. Fair and Gilbert Greenway, of New York.

The five seater Loening Air Yacht on its slip at Palm Beach, Fla. This is the first American seaplane to be registered by Underwriters' Laboratories according to the International Air Convention

The Loening Air Yacht carries four passengers besides the pilot, and is the holder of the world's altitude record for seaplanes. In addition to its high speed of 125 m.p.h., the rapid climbing ability of this machine has led to frequent parties at Palm Beach made up for the purpose of "cloud-chasing". The party aboard the air yacht pick out a particular cloud and rapidly climb to the top of it, and survey from a height of 8000 to 9000 ft. the remarkable scenic effects that one finds when above the clouds.

A great many prominent visitors at Palm Beach have flown in the Loening Air Yacht. Among New Yorkers who have done so are Frederick R. Sears, Vincent Astor, Stephen Sanford, Johnston, Redmond, E. P. Charlton, and Frederick Allen, and many notable men—among them, A. I. DuPont, Leonard M. Replogle, J. S. Allyne, Postmaster General Will H. Hays, Samuel Untermyer, and William Jennings Bryan. The rapid time made in trips to Miami has enabled many people to arrange parties to go there from Palm Beach for lunch and return, and the introduction of this high speed air yacht at the Florida resort has given added impetus to flying.

Tests on Air Propellers in Yaw

N.A.C.A. Report No. 113

This report, by W. F. Durand and E. P. Lesley, contains the results of tests to determine the thrust (pull) and torque characteristics of air propellers in movement relative to the air in a line oblique to the line of the shaft, and specifically when such angle of obliquity is large, as in the case of the helicopter flight with the propeller serving for both sustentation and traction.

New Colors for the Air Service

Specifications for the Army uniform, recently issued by the War Department, give as the Air Service colors ultra-marine blue piped with golden orange.

Italian Aircraft Register

The Civil Service Division, Superior Command of Aeronautics, Italian War Department, announces that there has been created under government supervision a civil concern called the Registro Aeronautico Nazionale (National Aeronautical Register) which answers the same purpose as the Underwriters' Laboratories Aircraft Register and Lloyd's Aviation Register.

All Italian civil aircraft will henceforth be registered with the R.A.N., which will assign them, in accordance with the provision of the International Air Convention, a four-letter registration mark. These aircraft will be registered in one of the fifteen State airports which have been created by the Superior Command of Aeronautics for the requirements of civil air transport, and which will be the home ports of the respective aircraft. These home ports will be indicated by the first letter of the four-letter registration mark, as follows:

A—Turin (Mirafiori).
B—Milan (Taliedo).
C—Bologna.
D—Pisa (San Giusto).
E—Rome (Centocelle).
F—Naples (Capodichino).
G—Brindisi (Marmorelle).
H—Catania (Fontanarossa).
I—Cagliari (Monserrato).
L—Venice (San Niccolo del Lido).
M—Ancona (Aspio).
N—Udine (Campoformido).
O—Trieste (Zaule).
P—Genoa.
V—Verona (Ganfardine).

This system would seem to recommend itself for American conditions insofar as the first letter of the registration mark might be used to indicate the aircraft registration zones into which the United States will have to be divided to simplify operations when air transport will take a great expansion. It seems that such zones should be made to cover given areas of major aeronautical activity rather than single states, for there are only twenty-six letters in the alphabet as against forty-eight states and the various Dependencies, and some States, like New York, for instance, will probably have to comprise two such registration zones. On the other hand it will be impractical to use more than one letter to designate such zones, as two letters allow only 676 distinct combinations, whereas three letters give 17,576 combinations.

The British system is to use the first letter of the registration mark to designate the various component parts of the British Empire: E (England), C (Canada), AU (Australia), etc., while the French embody in the registration mark the initials of the respective air line, such as GE (Grands Express), FR (Franco-Roumaine), etc.

Air Service Wants Flying Cadets

Young men who are interested in aeronautics will be attracted by the announcement that examinations are now being held at various Air Service stations for the purpose of securing eligibles for appointment as flying cadets. The following are eligible for this appointment:

(a) Enlisted men of the Regular Army. (b) Civilians. Candidates must be, at time of application:

(a) Unmarried male citizens of the United States.

(b) Between the ages of 20 and 27 years.

(c) High School graduates, or possess the equivalent of a high school education.

(d) Of excellent character.

(e) Of sound physique and in excellent health.

The base pay of flying cadets is $75 per month, which includes extra pay for flying risk. The ration allowance will not exceed $1.00 per day; the other allowances, such as clothing, equipment, etc., are those of a private, first class, Air Service.

Applicants from civil life will be required to pay all expenses incident to their appearances before the examining board for examination, and no claim for reimbursements of expenses incurred prior to enlistment will be considered.

The term of enlistment is three years. As the course, due to unforseen conditions, may extend beyond one year, flying cadets are enlisted for three years, but will be discharged upon completion or failure to complete the prescribed course, and will not be required to serve the unexpired portion of their enlistment period.

Flying cadets who successfully complete the prescribed course of training will be commissioned Second Lieutenants in the Air Service Officers' Reserve Corps (inactive status) and, upon discharge, receive such travel pay and other allowances as are given other enlisted men when discharged from the service.

Examining boards are now located at the following stations: Mitchel Field, Long Island, N. Y.; Ellington Field, Houston, Tex.; Bolling Field, Anacostia, D. C.; Crissy Field, San Francisco, Calif.; Langley Field, Hampton, Va.; March Field, Riverside, Calif.; Carlstrom Field, Arcadia, Fla.; Mather Field, Sacramento, Calif.; McCook Field, Dayton, Ohio; Ross Field, Arcadia, Calif.; Chanute Field, Rantoul, Ill.; Philippine Dept., Manila, P. I.; Scott Field, Belleville, Ill.; Hawaiian Department, Luke Field, H. T.; Post Field, Fort Sill, Okla.; Panama Canal Dept, Cristobal, C. Z.; Kelly Field, San Antonio, Tex. and Montgomery Air Intermediate Depot, Montgomery, Ala.

The next class for the training of cadets in heavier-than-air (airplanes) is scheduled to commence about July 1, 1922 and the next class for the training of cadets in lighter-than-air (balloons and airships) is scheduled to commence about Sept. 25, 1922.

Due to the reduced strength of the Army, the number of appointments to this grade will be limited, but it is expected that it will be possible to appoint about 150 for the coming class. Applicants should if eligible for this appointment, communicate with the Office of the Chief of Air Service, and application blanks and other pertinent information in regard to this training will be promptly furnished.

Kansas City News

The Flying Club of Kansas City advises that a proposed ordinance now before the city government authorizes the making of an aerial map of Kansas City, Mo. and appropriates $10,000 for that purpose.

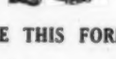
Under the direction of the Flying Club of Kansas City, and with the active cooperation of the municipal government, the Chamber of Commerce and other civic bodies, the field on which the National American Legion Flying Meet was held last Fall, has been made a permanent public field. Manufacturers, sales organizations and operators are now arranging for field privileges and facilities. It is believed that by the end of this month eight or ten airplanes will be located permanently at the field. An organization doing business with the Flying Club of Kansas City is assured of sincere and efficient cooperation.

Virtually everybody in Kansas City, which, including the suburbs, has about 500,000 population, is enthusiastic over the project to make Kansas City, Mo. the hub of commercial air transport. Those desiring to communicate with the Flying Club of Kansas City should address: Maj. Howard F. Wehrle, president, or C. S. Wengert, secretary, 1221 Grand Avenue, Kansas City, Mo.

THE CONTEST COMMITTEE
of the
AERO CLUB OF AMERICA

Requests all owners (individuals or companies) of aircraft in the United States to register in order that the Committee may

1. Send, gratis, the Aero Club's Contest Rules for 1922, and notices of proposed aviation meets.
2. Assist local Clubs in organizing contests best adapted to the types of airplanes in their locality.
3. Have a record of airplanes and pilots available throughout the country in times of emergency.



USE THIS FORM.

CONTEST COMMITTEE, AERO CLUB OF AMERICA;
11 East 38th Street, New York City

Date .....

I / We) have ..... (Give number) (Airplanes) (Seaplanes) (Flying Boats) (Airships) (Free Balloons)

Make and Model .....

Motor, Make and Model .....

Maximum speed of .....m.p.h.

Capable of continuous flights of ..... miles

Cubic capacity of gas bag ..... cu. ft.

Underwriters' Laboratories Aircraft Registration No. .....

Pilot's name .....

Address .....

Owner's name .....

Address .....

Air Service News

Kelly Field Activities.—Test flying and GAX instruction has been carried out by the 90th Squadron recently, although the clear weather periods have been but few. New motors are being installed in several ships, which are also being re-rigged while out of commission.

Officers of the 2nd Group (Bombardment) may be given an opportunity in the near future to get away from the steady diet of DH4B's. Effort is being made to secure a few SE5's, and Spads so that new pilots in the Group may be qualified on all available types.

Lieut.-Col. John H. Howard, A.S., assumed command of Kelly Field on Feb. 1st, relieving Maj. John N. Reynolds, A.S., who has been appointed Wing Operations Officer. Colonel Howard comes to Kelly Field from Fort Sill, where he recently completed the course of training for observation pilots.

* * *

New Class for Flight Surgeons at Mitchel Field.—A new course for Flight Surgeons opened at the Medical Research Laboratory, Mitchel Field, L. I., New York, on Feb. 1, 1922. The student personnel, consisting of five medical officers from the Army and five from the Navy, are as follows: Capts. Harrison Fisher, Joseph W. Garrett, William D. Middleton, Frank C. Venn and Lieut. Thomas F. Weldon of the U. S. Army, and Lieuts. Julius F. Neuberger, Victor S. Armstrong, Clark Robertson, Page C. Worthington and Louis Iverson of the U. S. Navy.

This is the first class at the School for Flight Surgeons in which the Navy has had student representatives, and followed a request made by the Secretary of the Navy to the Secretary of War. The course of instruction extends over a period of three months.

* * *

440th Reserve Squadron.—The 440th Reserve Squadron, stationed at San Jose, Calif., have just received a complete dismantled airplane, sent to them by the government from Crissy Field, and with Lieut. Robert E. Selff, Air Service, as instructor, members of this organization received their first actual instruction in their work at the Technical High School in San Jose.

It was announced at the meeting that 184 members, of which seventeen are officers have now been signed for the squadron, and that others have signified their intention of becoming members. Officers of the squadron are now endeavoring to locate a suitable flying field for their headquarters, and when one is found the members will meet there each week instead of at the high school.

* * *

Flying Cadets Commissioned in Reserve Corps.—Commissions have arrived at Mather Field, Mills, Calif., and orders have been issued covering the discharge of members of the first class of cadets. These men are being discharged to accept commissions in the Officers' Reserve Corps. All express a desire to continue in the service as cadets or as officers, but no provision has been made to answer the desires of capable pilots whose enthusiasm for flying is so self evident.

This class of cadets made the forest fire patrol possible through the season of 1921, the patrol covering the States of Oregon, Washington and California. The work they accomplished speaks for itself. These pilots have had approximately 250 flying hours apiece in the air, and have developed into exceedingly efficient pilots.

* * *

Student Pilots at Carlstrom Field.—The new class of officers and cadets have recently reported at Carlstrom Field for pilot training. The officer class is very small this time, and only about a dozen have reported to date, while some 75 cadets have reported. About 25 per cent of the cadets are from the enlisted personnel of the Air Service and 75 per cent from civil life. This will probably be the last class to graduate from this station, due to the expected moving of the school to Kelly Field.

Notices to Aviators

Issued by Hydrographic Office, U. S. Navy

Illinois

Ottawa—Kingfield Landing Field no longer available for landing of airplanes.—Information has been received from the Ottawa Chamber of Commerce, through the Office of the Director of Air Service, Washington, D. C., that the Kingfield Landing Field, Ottawa, Ill., is no longer available for landing purposes on account of the construction of goal posts for football and also the fencing of the field. We are informed that better landing places are available on the southern side and at other places adjacent to the city, but no information concerning such localities is available. (N.M. 2, 1922.)

Rhode Island

Narragansett Bay—Providence—Landing for seaplanes.—The commanding officer, United States Naval Air Station, Rockaway Beach, Long Island, reports that a landing for seaplanes can be found at Providence, R. I., in depths of 10 to 30 ft., mud bottom, with good beaching facilities; rise and fall of tide 4.6 ft.

Facilities and supplies of all kinds are available.

NOTE.—From Oyster Bay to Providence is about 126 miles; course, Oyster Bay to Brenton Reef Light Vessel 72°; Brenton Reef Light Vessel to Providence 356°. (N. A. 10, 1921.)

Vermont

Burlington—Landing field.—A permanent municipal landing field has been established at Burlington, Vt. This field is located just north of the first bend in the turnpike after it leaves Burlington. The field is marked with a white circle. The long axis of the field is east-west; best approach from the east; surface level. There are high trees on the south side and a small square graveyard in the southwest corner.

For further information address Mr. M. S. Beele, Chamber of Commerce, Burlington, Vt. (N. A. 12, 1921.)

Notes

Flying weather forecast by radio extended.—Arrangements have been made for the inclusion by the Weather Bureau of a *flying weather forecast* for zones 1 to 5, inclusive, for the period midnight to noon of the following day, in the *weather broadcast* from the naval radio station at Arlington, at 10 p.m. daily, commencing Jan. 16, 1922.

The form of this forecast and the areas covered will be the same as that included in the morning *weather broadcast* from Arlington. (N.A. 2, 1922.).

Coming Aeronautical Events

AMERICAN

Apr.* 30** — ***Spring Show and Opening Meet, Curtiss Field, Mineola, L. I.

May — ***National Balloon Race.***

Sept.* 4** *(about)* — ***Detroit Aerial Water Derby, Detroit. (Curtiss Marine Flying Trophy Competition.)

Sept.* 15** *(about)* — ***Detroit Aerial Derby, Detroit. (Pulitzer Trophy Race.)

Sept.* 30** — ***First Annual Interservice Championship Meet. (In preparation.)

FOREIGN

Aug.* 1** *(about)* — ***Coupe Jacques Schneider. (Seaplane speed race.) Italy, probably Naples.

Aug.* 6** — ***Gordon Bennett Balloon Race, Geneva, Switzerland.

Aug.* 6-20** — ***Soaring and Gliding Competition, Clermont-Ferrand, France.

Sept.* 22** — ***Coupe Henri Deutsch de la Meurthe. (Airplane speed race.) France.

American elimination trials, if required, to be held about Aug. 15, at Mitchel Field, L. I.

Aeronautical Briefs

Curtiss Airplanes in Argentina.—A report received from the Curtiss Aeroplane Export Corp., of New York City, covering operations in Argentina, states that during the year 1921, Curtiss machines, of which there are about twenty-six or thirty in operation, carried a total of 5788 passengers and covered 316,725 kilometers (which is roughly 195,000 miles). Not the slightest accident occurred, excepting one broken landing gear and propeller on account of a forced landing in a thick fog. A total of twenty-one civilian students were trained at the Curtiss Field, and Curtiss machines and motors flew a total of 2434 hr. British, French and Italians have airdromes and schools of their own in Argentina, and the Curtiss people flew more hours, trained more men and covered more distance than all of them combined.

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Aircraft and Prohibition.—Eleven airplanes, operating as a Prohibition enforcement squadron, seized the British schooner Annabella at the point of machine guns off the coast forty miles south of Miami on Feb. 20. A cargo of 11,500 case of whiskey worth $3,000,000 was confiscated and the crew of twenty-one men were taken into custody.

Each of the airplanes is equipped with a machine gun and with wireless apparatus employing a wave code other instruments cannot interpret, according to a pilot of one of the planes.

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Airships in Australia.—The British Imperial Government will be asked to extend the period during which certain airships now in its possession will be made available for the establishment of an experimental air service between Australia and England, in accordance with a resolution adopted by the Australian Parliament. Prime Minister Hughes explained that the British Government had a fleet of airships which it was willing to place at the disposal of the dominions, the latter having agreed to cooperate in a scheme which would enable aerial communication to be maintained between various parts of the Empire.

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Brennan Helicopter Lifts Off.—Louis Brennan's experimental helicopter completed its first actual successful test at the Farnborough airdrome on Feb. 9. Rising vertically from the ground and hovering in midair for some minutes, the helicopter landed lightly almost on the identical spot from which it rose.

The machine, weighing more than a ton, carrying a pilot and 250 lb. of excess weight was sent up secretly in a gyroscopic test.

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Studying Roma Accident.—At the request of Maj. Gen. Mason M. Patrick, Chief of Air Service, Edward Schildhauer, a consulting engineer specializing in lighter-than-air craft, and Dr. Bleistein, a representative of the Schuette-Lanz Airship Co. of Germany, have gone to Langley Field to make a special study of the destruction of the Army airship Roma.

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Shanghai, China, Organizes Air Club.—Some residents at Shanghai have organized an Air Club to discuss technical subjects in Aviation. The aim of the club is to develop air industries and stimulate flying exhibitions and aircraft experiments in Shanghai. It is reported that the club intends to join the International Aeronautical Federation.

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Border Incident Adjusted.—W. B. Atwell, American commercial aviator, who was held by Mexican officials for twenty-four hours after he had made a forced landing fifteen miles south of Juarez, Mexico, recently, has received his plane following a conference between American Vice Consul Harper and the Mexican authorities. Atwell said he landed in Mexico because the flat country there made it safer than on the American side.

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